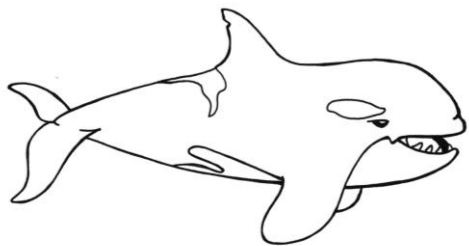


A WEEK'S WORTH OF WONDERFUL SALISH SEA WHALES!



MONDAY:

What is the Salish Sea and Where is it?

TUESDAY:

PART ONE - Meet Your Whale Neighbors: Identify Their Body Parts by Name

PART TWO - Meet Your Whale Neighbors: Learn Their Names & How They Eat

WEDNESDAY:

PART ONE - Meet Your Whale Neighbors: 3 Types of Baleen Whales in the Salish Sea

PART TWO - Meet Your Whale Neighbors: How to Tell Baleen Whales Apart on the Water

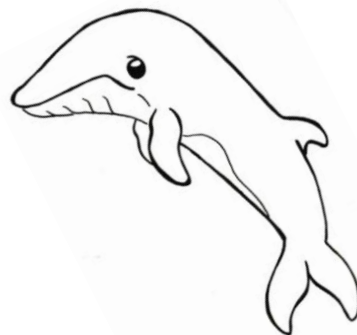
THURSDAY:

PART ONE - Meet Your Whale Neighbors: 2 Different Orca Communities in the Salish Sea

PART TWO - Meet Your Whale Neighbors: How to Tell the Orca Communities Apart on the Water

FRIDAY:

How to Identify Orcas as Individuals

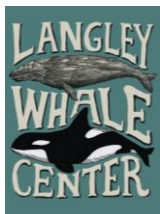
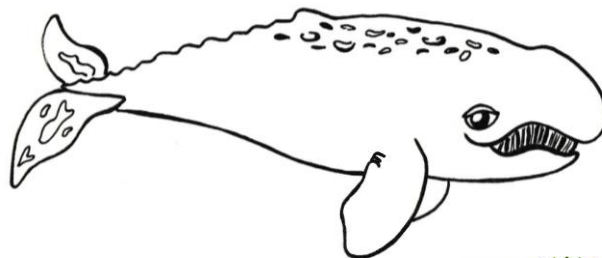
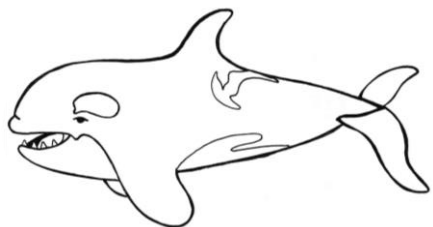


SATURDAY:

Threatened & Endangered: What it Means and How You Can Help!

SUNDAY:

How to Report Whale Sightings and How to Help us with our Community Science Projects



What is the Salish Sea and Where is it?



- The Salish Sea (**pronounced Say-lish**) is a unique and special place. This means that the exact environmental conditions that make up the Salish Sea are not found anywhere else in the world.
- This Sea is made up of three large, interior bodies of water:
 - The Strait of Juan de Fuca (**pronounced: wan-da-fyu-cah**)
 - Puget Sound (**pronounced Pyu-jet**)
 - Strait of Georgia
- The Salish Sea **also includes all the rivers that flow directly into these three main bodies of water (everything you see included inside the green boundary line)**. This is because fresh water, coming from the snow melt in the mountains, mixes with the sea water, changing the salt content of the sea. This makes the Salish Sea less salty than the Pacific Ocean. This fresh water also carries a lot of important nutrients into the Salish Sea. Those nutrients support the food chain and the creatures that live in, and around, the water. These are just a few environmental conditions that make this sea unique and special.
- The Salish Sea is located in both the United States and Canada!
 - Can you name the state? W _____
 - Can you name the Canadian Province? B _____ C _____
- Do you live somewhere that falls inside the Salish Sea Boundary? If you do, draw a star where you live. If you don't, draw a star on the map at someplace you'd like to visit.

Meet your Whale Neighbors: Identify Their Body Parts by Name

Whales are especially **adapted** to live in their water environments. "**Adapted**" means that they have specific body shapes and body parts that help them to be expert swimmers! Each species may have slightly different sizes and shapes to certain body parts. Can you name some of their body parts and spot the differences?

Use the **word bank** to help you fill in the blanks. Cross out each word once you've put them in the right spot. You will notice one word is listed twice. **We have done the first one for you.**

LEARN THE PARTS OF A WHALE

ORCA "KILLER WHALE"

1. What differences do you see in the orca and the gray whale?

2. What body parts do some whales have that we **also have**?

WORD BANK

PECTORAL	SADDLE PATCH	BALEEN
DORSAL RIDGE	TAIL FLUKES	DORSAL FIN
TAIL FLUKES	PECTORAL	TEETH

LEARN THE PARTS OF A WHALE

GRAY WHALE

3. What body parts do some whales have that we **don't** have?

Meet your Whale Neighbors: Learn Their Names & How They Eat

If you notice on the last page, not all whales have teeth. This means that each whale species has a special way they find and eat food. Use this word find, below, to get familiar with the names of whales. There are also words for how they eat and clues to what they eat while they are in the Salish Sea.

WHALE NAMES:

ORCA
 MINKE
 GRAY
 HUMPBACK
 WHALE



A	P	M	I	N	F	I	L	T	E	R	E
S	B	A	L	E	E	N	O	N	I	M	K
G	E	H	P	L	A	N	D	E	E	F	I
P	O	A	P	T	A	C	E	A	Q	I	S
T	E	R	L	O	S	A	L	M	O	N	A
H	I	S	A	L	E	R	K	I	G	E	D
R	A	M	N	L	A	O	Z	N	P	A	G
E	P	I	K	T	N	O	M	K	E	W	S
N	O	H	T	O	O	T	H	E	D	H	E
O	R	U	O	P	I	L	A	B	R	A	N
I	P	M	N	T	L	R	Y	I	J	F	N
T	O	P	F	I	A	V	M	X	E	N	A
A	I	B	Z	O	E	P	R	O	E	K	E
C	S	A	R	T	S	G	A	R	D	O	C
O	E	C	O	R	Q	I	R	C	Y	O	A
L	R	K	P	R	U	F	J	A	C	M	T
O	D	B	E	L	A	H	W	E	Y	L	E
H	R	J	I	E	X	R	I	N	G	H	C
C	O	Q	U	T	T	E	Z	A	M	W	E
E	C	H	R	H	E	R	R	I	N	G	L

WORDS FOR HOW & WHAT WHALES EAT:

FEED	TOOTHED
BALEEN	BITE
FILTER	SALMON
PLANKTON	SEAL
SHRIMP	SEA LION
HERRING	PORPOISE

Meet your Whale Neighbors: 3 Types of Baleen Whales in the Salish Sea

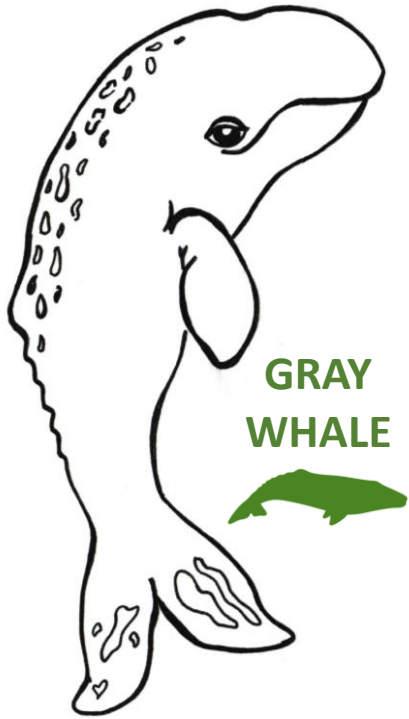
Whales are **mammals**, like we are! They **breathe air**, **have hair** somewhere on their bodies, and **give birth** to and **nurse** their babies. This makes whales different than fish that must use gills to breathe and lay eggs to hatch young.

BALEEN WHALES

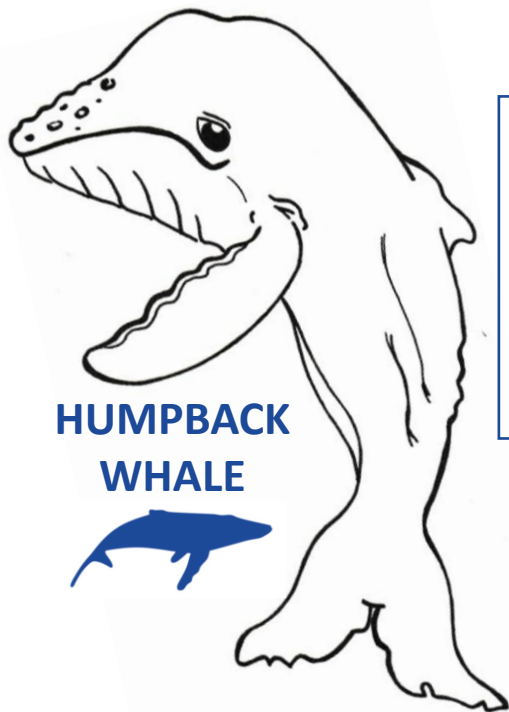
*These whales **do not** have teeth but have **baleen** instead (**pronounced bay-leen**).

***Baleen** is made up of hundreds of plates lined with fine hair. These plates hang down from the whales' upper jaw. **Baleen** is not made from bone, but a substance called Keratin (**pronounced care-ah-tin**)—this is the same thing our hair and nails are made up of!

***Baleen** whales filter for their food, either taking in large mouthfuls of water or sediment. Their food gets stuck in the **baleen** as the whale spits out the water or mud. Then the whale scrapes the food off the **baleen** with their tongue and swallows it.

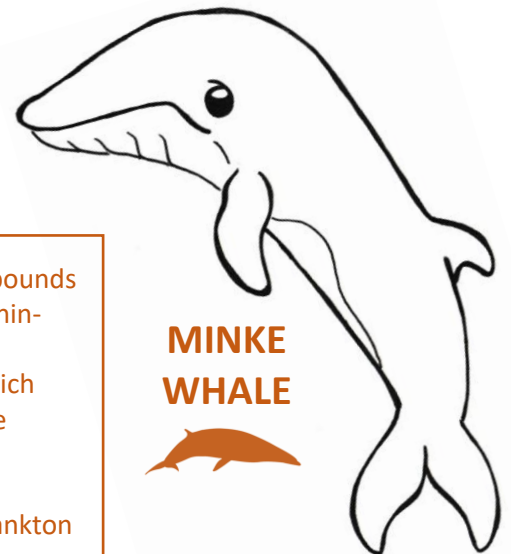


- Group of 12-14 "Sounders" visits Puget Sound in the Spring, mostly around Whidbey & Camano Islands.
- 35-50 feet long when full grown.
- Can weigh around 52,000 pounds.
- Migrating whale – travels between Alaska and Baja Mexico.
- Cold water feeding and warm water breeding.
- Known for their heart-shaped blow (breath, or spout) seen on the surface of the water when coming up to breathe.
- Prey types (food):
Ghost Shrimp



- Summer visitor; seen in the Strait of Juan de Fuca, around the San Juan Islands, northern Puget Sound, and around Vancouver Island.
- 50-56 feet long when full grown.
- Weighs between 50,000 and 80,000 pounds.
- Migrating whale –travels between Alaska and either Mexico or Hawaii.
- Cold water feeding and warm water breeding
- Known for their long pectoral fins, knobby head,.
- Prey types (food):
Krill, Plankton, & Herring

- Name pronounced: "mink-ee"
- Spring/Summer visitor mostly around San Juan Islands and the Gulf Islands near Vancouver.
- Migrating whale; cold water feeding but it's not known where Minke breed and give birth.
- Weighs 12,000 to 19,000 pounds
- Fin is very small and "dolphin-like"
- Known for their breath which earned them the nickname "stinky minke".
- Prey types:
Sand lance, Herring, Zooplankton



Meet your Whale Neighbors: How to Tell Baleen Whales Apart on the Water

DRAW A LINE BETWEEN THE WHALE CLUES IN THE RIGHT COLUMN AND THE MATCHING WHALE PHOTO/ILLUSTRATION IN THE LEFT COLUMN.



- I'm a whale that has a small, hooked dorsal fin. That fin is located closer to my tail, along my spine, and it's usually the last thing you'll see before I go under water.
- My skin is very dark and sleek-looking—some people think I look like a big dolphin!



- I'm a whale that **does not** have a dorsal fin. I have a "dorsal ridge" instead (If you make a fist and look at your knuckles, this is what my spine area looks like).
- I also have light spots where barnacles once grew on my skin, but then fell off.



- I'm a whale that's very dark in color and I don't have spots on my back.
- I got my name because when I bend my body to dive deep, you can see a hump just before my dorsal fin.

Meet your Whale Neighbors: 2 Different Orca Communities in the Salish Sea

Whales are **mammals**, like we are! They **breathe air**, **have hair** somewhere on their bodies, and **give birth** to and **nurse** their babies. This makes whales different than fish that must use gills to breathe and lay eggs to hatch young.

TOOTHED WHALES

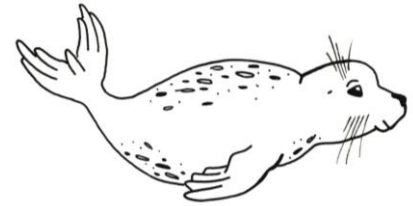
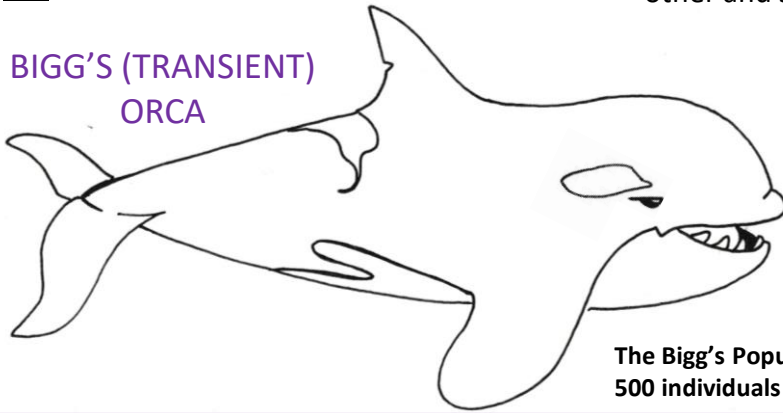
*These whales **do** have teeth for catching, biting, and tearing their food into smaller pieces. This is so they can share their food with their family members, and also so these pieces are small enough to swallow. They **do not** use their teeth to chew.

THERE ARE TWO TYPES OF ORCA IN THE SALISH SEA?

YES!

They eat totally different things, speak different languages, and their family groups (called pods) are made up very differently. Most importantly, they do not breed with each other and stick to their own extended family pods.

BIGG'S (TRANSIENT) ORCA



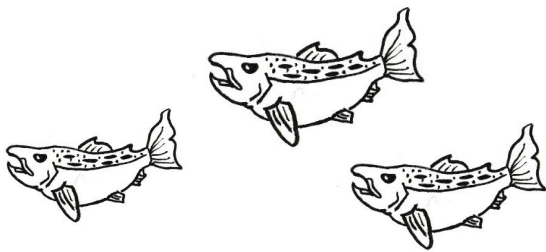
The Bigg's Population is considered "stable". There are more than 500 individuals with over 250 sighted regularly in the Salish Sea.

- Non-migratory but are found in a "range" instead. This range is from Southeastern Alaska all the way down the coast of California. They can be seen in the Salish Sea year-round.
- Pods are made up of mother and her offspring. When offspring become adults, they often break away from their families and form their own pods.
- 19-30 feet long when full grown.

- Weigh between 8,000-16,000 pounds.
- Prey types in the Salish Sea: Seals, Sea Lions, and Porpoise.

DIFFERENCES YOU CAN SEE:

- Closed saddle patch (gray mark behind dorsal fin).
- Tend to have a pointy tip on their dorsal fins (like sharks).
- Sometimes lots of scars and nicks out of their dorsal fins. Their prey fights back!



SOUTHERN RESIDENT ORCA



Southern Resident orcas are ENDANGERED and are struggling to find enough food to recover. Their population has less than 75 individuals.

- Non-migratory but are found in a "range" instead. This range is around the southern end of Vancouver Island and off the coast off Washington and Oregon, sometimes as far south as Monterey Bay, California. These orcas move into the Salish Sea as runs of salmon make their way back to rivers to spawn.
- Pods are made up of three large, extended family groups. They are J Pod, K Pod, and L Pod. Mothers, Grandmothers, aunts, uncles, and siblings all stay together for life.

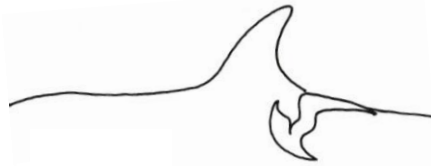
- 18-26 feet long when full grown.
- Weigh between 6,000-12,000 pounds.
- Preferred Prey is Chinook Salmon, but Coho and Chum salmon are also eaten.

DIFFERENCES YOU CAN SEE:

- Some "open" saddle patches occur where their black skin creeps down into the gray, cloudy area behind the dorsal.
- Tend to have a rounded tip on their dorsal fins.
- Little scarring and less nicks out of their dorsal fins. Fish don't fight back.

Meet your Whale Neighbors: How to Tell the Orca Communities Apart on the Water

DRAW A LINE BETWEEN THE ORCA CLUES IN THE RIGHT COLUMN AND THE MATCHING ORCA PHOTO/ILLUSTRATION IN THE LEFT COLUMN.



- These orcas tend to have a pointy tip on their dorsal fins (kind of like sharks do!).
- They also mostly have “closed” saddle patches, with no black skin inside their gray marking.
- They tend to have scars, dark marks, and missing notches in some of their dorsal fins, as the food that they eat, fights back.



- These orcas tend to have a rounded tip on their dorsal fins.
- Some of them have an “open” saddle patch (that gray, cloudy mark just behind the dorsal fin) where some of their black skin can be seen inside the gray marking.

No matter which orca community you look at (even those in other places around the world), **each orcas' saddle patch is as unique to the individual orca as our thumbprint is to each human!** No two orcas have the same saddle patch.

Meet your Whale Neighbors: How to Identify Individual Orcas

The scientific community started studying orcas in the Salish Sea in the 1970s. They discovered that there are **two different** orca communities that look for food in this region. **One community spends their whole life with their extended family and eats fish. The other community tends to be in smaller family groups and hunts for seals, sea lions, and porpoises. These two communities do not spend any time with each other and do not have babies with each other.**

What scientists also discovered was that **there are physical differences that can be seen**—and not just between the two different communities; there are **differences between each individual orca**, too.

Scientists began to keep a record of all the orcas found in the Salish Sea. They wanted to know how many individuals there are in each community. The Southern Residents and the Bigg's orcas are recorded a little differently. Today, we're going to show you how they are categorized and how scientists tell the difference between each individual orca.

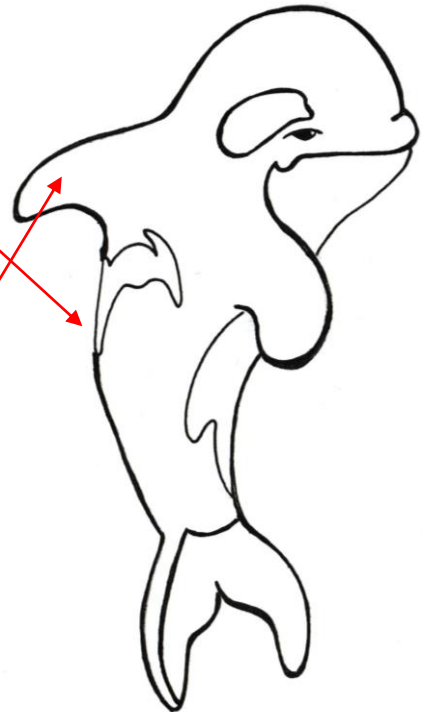
Southern Resident orcas

Saddle Patch:

Each orca has a marking just behind their dorsal fin called a "saddle patch". No two saddle patches are alike, making it the easiest way to tell individuals apart from each other. In this community, some orcas have "open" saddle patches where the black part of their skin is inside of the gray saddle patch area. This trait can make certain individuals easier to identify.

Dorsal Fin:

Each orca's dorsal fin also has slight differences in shape, and in the Southern Resident community the tip of the dorsal fin is often rounded (no sharp point). The easiest way to tell the difference between adult male and adult female orcas are by the size and shape of this fin. In this community male dorsal fins can be 5 feet tall when fully grown and they usually have a straighter edge closest to the saddle patch side. Females have shorter fins and are often curved (like dolphins).



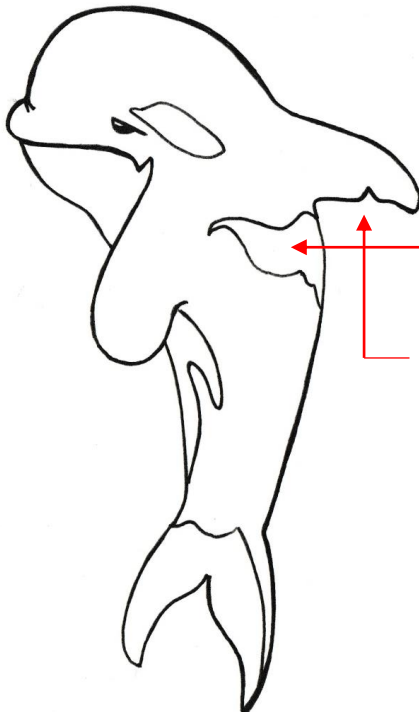
Bigg's (Transient) orcas

Saddle Patch:

Even though no two saddle patches are exactly alike, it can be a little harder to see the differences in saddle patches in this community. Bigg's orcas have mostly closed saddle patches where there is no black inside of the gray saddle patch area. There are scars and marks that show up as darker lines inside of the gray area, though, as their food fights back against the orcas.

Dorsal Fin:

The dorsal fin can be the easier thing to use when identifying orcas in the Bigg's community. This is because, with their food fighting back like mentioned above, they often have pieces missing in the edge of their dorsal fin closest to their saddle patch. These missing pieces never grow back in, so they become reliable and unique traits to the individual orca (the illustration helps to show you what this might look like). Bigg's orcas are larger in size, overall, than Southern Resident orcas, so males in this community can have a 6-foot tall dorsal fin when its fully grown. Females will still have shorter fins, but they can be straighter instead of curved, and the tip usually comes to a point, kind of like a shark's fin!



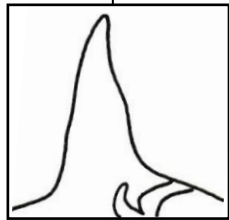
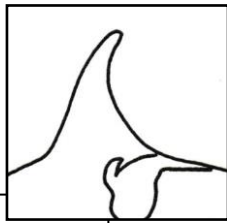
Meet your Whale Neighbors: How to Identify Individual Orcas (Let's Put What You Learned to the Test!)

Orcas live in pods and are matriarchal ([pronounced may-tree-ar-call](#)). Matriarchal means that mom is in charge of her family. Because mom is the leader, scientists have categorized each of the families within these orca communities using mom's designation first (*A **designation** is the letter and number that researchers assign to individual orcas).

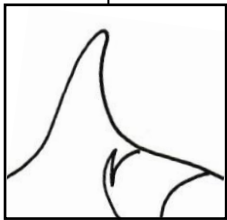
Southern Resident orcas belong to three large pods, **J Pod**, **K Pod**, and **L Pod**. Each pod is made up of smaller family groups. For instance, below is the J16 family. J16 is mom and the matriarch. Her letter/number designation tell us two things. The letter lets us know which pod she belongs to. The "16" was given to her because she was the 16th orca that scientists recorded in her pod. She also has a common name ([like a name you would give your pet](#)). J16 is also known as "Slick".

The J16's

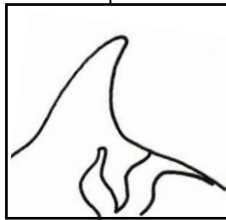
J16 "Slick"



J26 "Mike"



J36 "Alki"



J42 "Echo"

J16 "Slick" has three living offspring pictured in this family chart to the left. They are: J26, J36, and J42. Based on their designations, what **pod** do you think this family belongs to?

Learning about dorsal fin shape and size on the last page, how many females are in this family?

From learning about saddle patches in the Southern Resident community, which of these orcas have large, open saddle patches? (*HINT: there are 2)

Bigg's (Transient) orcas are made up of many, smaller family groups, some which don't visit the Salish Sea very often. Scientists gave this community a "**T**" designation. Mom is the leader of her family in this community, too, so each family is still known by her letter/number designation. But these orcas are given their mom's number and then a letter of the alphabet, in the order that they are born. The first born is "A", the second born is "B", and so on. This is the T046 family.

The T046's

T046 "Wake"



*T122 "Centeki"



T046D "Strider"



T046E "Thor"



T046F "Loki"

T046 "Wake" has four living family members that currently travel with her. Remember, as orcas in this community get older, some adults will break away to travel alone, or to form their own families. Because of this, it's not uncommon to see the older members missing from this family chart. Who do you notice is different, though? *Hint, this orca was "adopted" by T046 "Wake".

Learning about dorsal fin shape and size on the last page, how many males are in this family?

Threatened: What it Means and How You Can Help!

THREATENED

When a whale is **threatened** it means that there is a condition that is a source of **danger** to either that individual whale or to the whale's population, overall. That source of danger could hurt or kill that whale. The gray whales that visit the Salish Sea in the spring can be used as a great example.

Gray whales are bottom feeders, scooping up the mud to filter ghost shrimp through their baleen. Plastic that has sunk to the bottom of the sea is a **source of danger** to gray whales because it gets stuck in the whales' stomachs and cannot be digested (the stomach won't break down the plastic). The whale thinks it's full and won't eat anymore. When this happens the whale's life is **threatened** because it can eventually die of starvation.

So what can you do to **reduce the threat** to gray whales?

WE **LOVE** BEACH CLEAN-UPS!

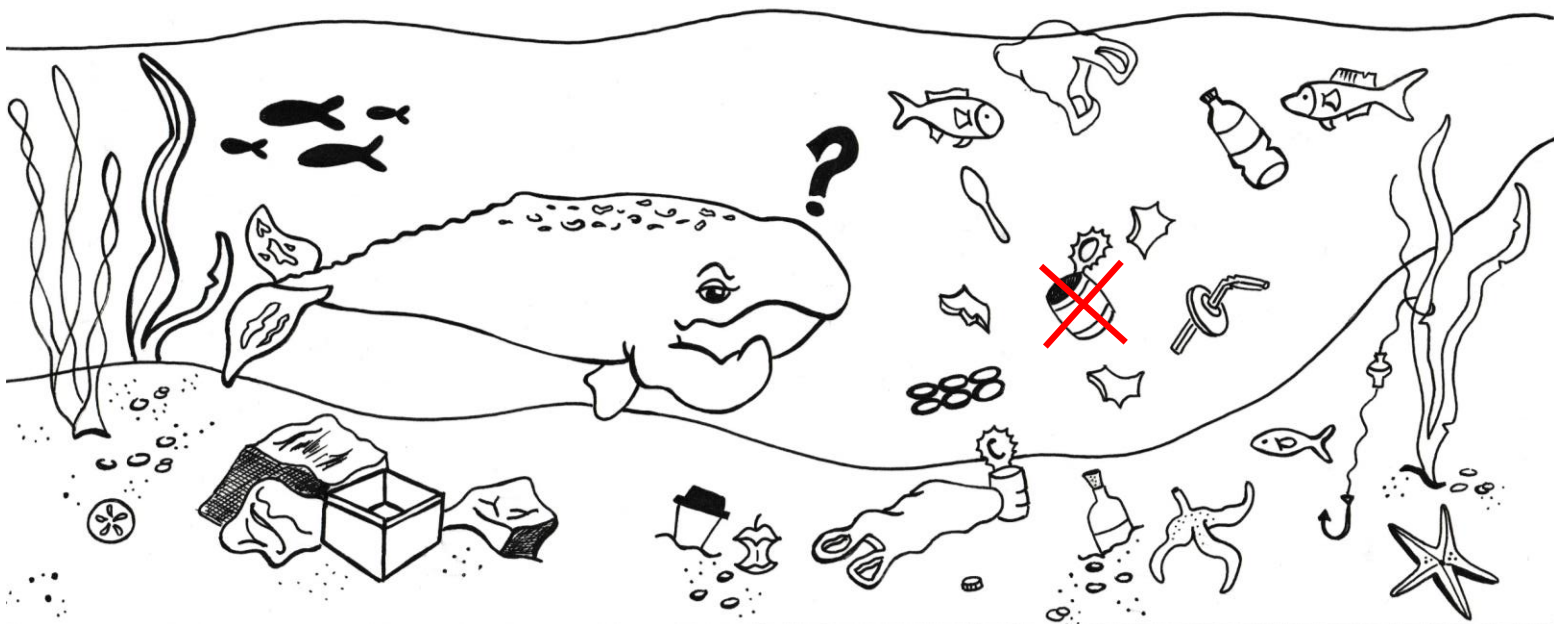
TO PROTECT THE GRAY WHALES, WHO SPEND A LOT OF TIME AROUND WHIDBEY & CAMANO ISLANDS FROM MARCH UNTIL LATE MAY, YOU CAN HELP US DO THE FOLLOWING:

- PICK UP ANY TRASH YOU SEE ALONG THE BEACHES & ON LAND.
- **INLAND TRASH CAN WIND UP IN THE SALISH SEA!**
- DISPOSE OF YOUR OWN GARBAGE PROPERLY.
- TEACH PEOPLE ABOUT WHY PLASTIC ISN'T GOOD FOR THE WHALES.



Some tools for the job are pictured above. What else could help you pick up trash off the beach?

Help the gray whale avoid the trash! Place an "X" on the things she should **NOT** eat. We've done the first one for you.



Endangered: What it Means and How You Can Help!

ENDANGERED

The term **endangered** is typically used to describe a population, or species, that is in **serious decline**, meaning that that population has lost a lot of individuals, already. If a population is **endangered**, it also means that population is **at risk of disappearing forever**. If that population does disappear, it would then be **extinct**.

Once a species, or population, goes extinct, we cannot bring them back.

The **Southern Residents** are a group of orcas that have been on the **Endangered Species List** since 2003 in Canada and 2005 in the United States. Their current population hovers between 70 and 80 individuals.

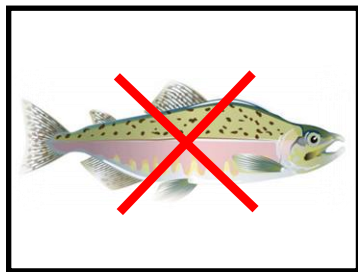
These orcas are unlike any other orca community around the world: they speak their own distinct language, they live with their mothers and families their entire life, and the Southern Residents only eat fish—and really, really prefer Chinook Salmon out of all the fish!

There are many reasons that these orcas are endangered, all of which are human caused. We captured a large part of their population to put them in aquariums back in the 1960s and 1970s. Wild salmon populations are threatened and disappearing, there are a lot of toxins and pollution in the water, and the growing number of vessels and boats on the water make life beneath it a very loud place. This noise interferes with the orcas' hunting and communication abilities.

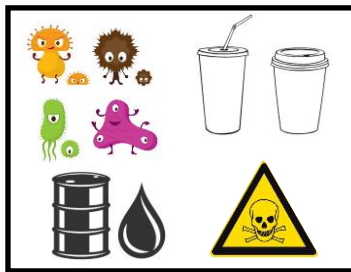
CAPTURES



LOSS OF PREY



POLLUTION



VESSEL NOISE



But the good news is we can all do things to lessen our impact on these orcas.

Here are some ways that **YOU** can help!



PLANT AN OCEAN-FRIENDLY GARDEN.

Ocean-friendly plants help trap pollution and keep it from getting into the ocean as "stormwater runoff". Look up ocean-friendly gardens for more information and inspiration!



STOP USING SINGLE-USE PLASTICS.

Request no straws at restaurants, use re-usable water bottles, grocery bags, and containers, use beeswax paper instead of plastic wrap, and buy used toys! It is predicted that by 2050 there will be more plastic in our oceans than fish if we don't stop using plastic.



WALK, BICYCLE, OR RIDE SHARE.

Using a car less can help with climate change and can help reduce pollutants from cars.

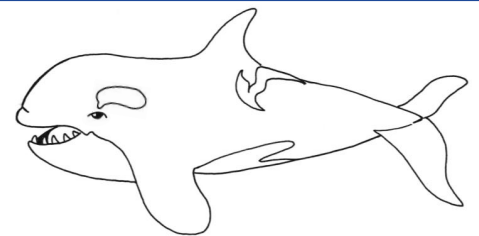


CONSERVE WATER & ENERGY

Turn off the water when you're brushing your teeth; turn off lights and fans when you're not in those rooms. Using less water means you're saving water for rivers, streams, and the sea--helping all who live there!

Make a pledge!

Write a commitment from the suggestions or create your own! Hang it up where you can see it as a reminder!



Name: _____

Here is My Pledge to help orcas:

← cut along the dotted lines →

How to Report Whale Sightings and How to Help us with our Community Science Projects

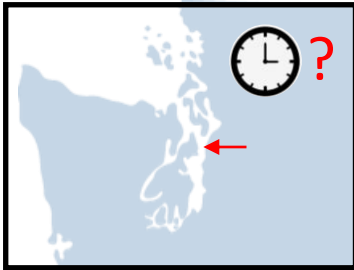


Orca Network's Whale Sighting Network is a unique way to increase knowledge about Salish Sea whales. The Whale Sighting Network involves communities and individuals by recording the sightings that are reported to us. We share those sightings through email, newsletters, and on social media, with Facebook being the easiest place to find real-time reports and updates. We've also created a map with public access points so you can get out to public boat launches, piers, beaches, parks, and trails to see your whale neighbors from shore! Find the interactive map on Facebook or our website: www.orcanetwork.org.

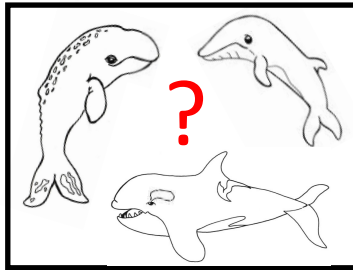
These sightings help researchers track the movement of different whale species, keep up-to-date population counts (like for the Southern Residents orcas), and make sure that the whales are healthy and in good condition. Reporting any whale you see when near the water is an important way for you to get involved in this community science project!

Call 866-ORCANET, or email info@orcanetwork.org, or report directly to us on our Facebook Page: Orca Network

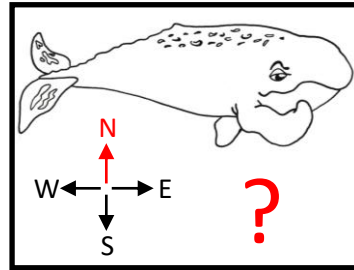
Here's what should be included in your report:



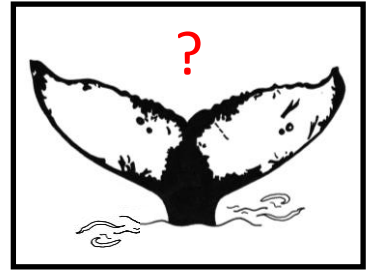
1. Where are you reporting from & what time did you have your sighting? Include the date.



2. What type of whale & how many of them? **If you're seeing orcas, how many males (large dorsal fins)?*



3. What direction were they going?



4. Any behaviors to note? *(chasing prey, traveling fast, jumping out of the water, splashing, etc.)*

Now you try one! Looking at the scene below, fill in the blanks on this report to accurately describe what you are seeing. **We've filled the first one out for you.**

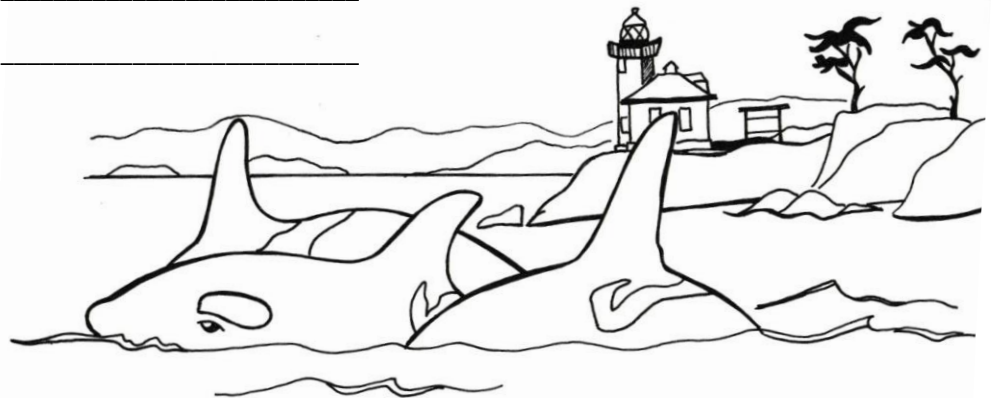
1. Location, Time, and Date:
Lime Kiln State Park Lighthouse,
2:38pm on Saturday July 5th, 2019

4. Any behaviors to note?

2. Type of whale? How many?

How many, large male dorsal fins?

3. What direction were they going?



If you've enjoyed learning some of the basics about the whales of the Salish Sea, you'd really love our Langley Whale Center! This education center and gift shop is located in Langley on Whidbey Island. Come see our specimens, the kids' room, and experience our ocean listening booth! There's something fun and educational for each member of the family, **and so much more to explore! OPEN: THURSDAYS - MONDAYS 11AM-5PM. CHECK FOR EXTENDED SUMMER HOURS.**

How to Report Whale Sightings and How to Help us with our Community Science Projects



The Central Puget Sound Marine Mammal Stranding Network (CPSMMSN), a partnership between Orca Network and NOAA Fisheries, is made up of trained staff and volunteers who respond to live and dead marine mammal strandings in Island, Skagit, and North Snohomish Counties. **CPSMMSN** examines and does tests and studies of dead, stranded marine mammals for NOAA's national database. They also get sick and injured animals to the right facility so that they can heal and hopefully be released back to the wild.

We learn a lot by doing these studies. Are there toxins or diseases that caused these animals to die? How old were they? Did plastic play a role? Here's how you can help this community science project:

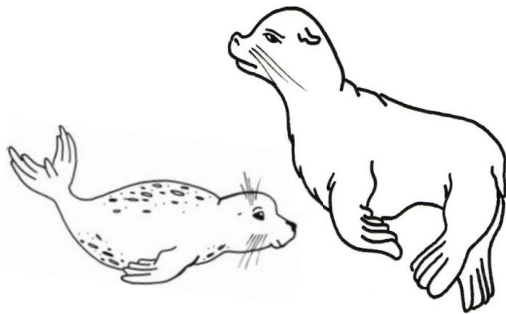
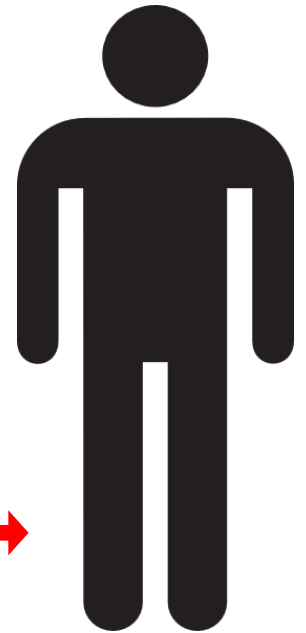
If you see a marine mammal on the beach:

Do not approach, stay at least 100 yards away to prevent disturbance!

Seals and sea lions haul out on beaches and rocks to rest and to regulate their body temperature (warm up).

Seal pups are often found resting alone while mom is looking for food in the water nearby. If a pup is approached too closely by a human or another animal, mom might think her pup is in danger and **abandon** them. **Abandon means to leave and not come back.**

For this reason, you **should never** approach a seal pup, pour water on it, or try to get it back into the water. Please call **CPSMMSN** to come examine the situation and make the right call.



100 yards = _____ feet (?)



Report the animal if it appears injured, sick, or is dead. This includes dolphins, porpoises, and whales that may beach themselves or "live strand". You can also report if someone is too close and causing the animal(s) stress.

To report sick, injured, beached or dead marine mammals call 866-ORCANET or email info@orca-network.org

For more information, go to:

www.nmfs.noaa.gov

and www.orcanetwork.org/strandings.html

Now you try one! There is a seal on the beach that looks like he may be hurt. He seems to be very lazy and isn't moving very much. You also notice that he has an injury in his tail that might be keeping him from swimming properly.

What do you do?

CIRCLE THE **CORRECT** ACTIONS TO TAKE TO HELP THIS INJURED SEAL

Try to feed him bread

Call your local stranding network

From 100 yards, try to see if you can tell why the seal looks sick or injured so you can make a good report

Try to scare the seal back into the water

Pour water on the seal while you wait for the stranding network professional

Keep other people from getting too close to the seal

Figure out what beach you're on to make sure the stranding network can find the seal

Wrap him in a beach blanket so you can take him to an animal shelter